REMARKS/ARGUMENTS

This Amendment is submitted in reply to the First Office Action dated June 23, 2009. Applicant respectfully requests reconsideration and further examination of the patent application pursuant to 37 C.F.R. § 1.111.

Summary of the Examiner's objections and rejections

Claims 46-51 stand objected to because of an antecedent error in claim 46.

Claims 33-64 under 35 U.S.C. § 103(a) as being unpatentable over Jeffries (US 2004/0062259) in view of Meyer (US 2002/0145976).

Summary of claim amendments

Applicant has amended claims 33-34, 36, 46-50, 53-54, 56 and 59-62. The support for the amendments to independent claims 33 and 53 can be found on page 5, lines 13-22, page 6, line 26-page 7, line 4, and page 8, lines 15-24 in the originally filed patent application. Applicant has also removed the reference numbers from the claims. No new subject matter has been added.

Remarks regarding objected claims

Claims 46-51 stand objected to because of an antecedent error in claim 46 from which claims 47-51 depend therefrom. Applicant has amended claim 46 to correct the antecedent error. In addition, Applicant has amended claim 61 to remove the use of the term "adapted to". Accordingly, Applicant respectfully requests the removal of this objection.

Remarks regarding the §103(a) rejections

Applicant respectfully submits that the amended independent claim 33 is not disclosed or suggested by Jeffries, Meyer or any combination thereof. The amended independent claim 33 recites the following:

> 33. A method of controlling a queue buffer, the queue buffer being connected to a link and being arranged to queue data units of a flow in a queue, comprising the steps of:
>
> determining a value of a length parameter related to the length of the queue;
>
> comparing the value with a length threshold value;
>
> performing a congestion notification procedure if the value is greater than the length threshold value, wherein the congestion notification procedure when performed drops or marks one or more data units; and
>
> performing an automatic threshold adaptation procedure, wherein the automatic threshold adaptation procedure comprises a procedure for adjusting the length threshold value on the basis of one or more flow control parameters, wherein the automatic threshold adaptation procedure determines when the congestion notification procedure would be performed to drop or mark one or more of the data units (emphasis added).

The Examiner indicated that the closest prior art Jeffries did not teach the claimed step of performing an automatic threshold adaptation procedure (see page 3 in the Office Action). Applicant agrees with the Examiner's conclusion regarding the claimed performing step. In addition, Applicant respectfully submits that Jeffries now teaches away from the claimed invention in view of the newly recited limitations related to the dropping or marking of data units. Jeffries's active queue management system was designed to solve a problem associated with using an average queue length and a feedback signal to determine packet drop rates. In particular, Jeffries's active queue management system was designed to solve the following problem:

> [0005] Common to all the above systems employing bandwidth feedback is that the feedback signal is based on average queue length, and this is then used directly to determine packet drop rates. While average queue length provides a useful indication of congestion status, using this directly to determine drop rates makes it difficult for network administrators to determine the correct parameter settings for operation of real networks. For example, finding the correct parameter settings where different groups of network users are offered different service levels, and for any combination of offered loads, is problematical. Moreover, in the above systems, feedback-dependent decisions on whether to transmit packets into a queue are made on a per-packet basis, requiring a significant amount of complex computation for each packet. Accordingly, it would be desirable to provide an active queue management system which alleviates some or all of the disadvantages with the above systems.
>
> (see paragraph [0005])

To address this problem, Jeffries disclosed a token-based active queue management system that dynamically adapts a token rate to control the traffic flow into a queue. Jeffries's token-based active queue management system does not have anything to do with the dropping or marking of data packets. In particular, Jeffries disclosed the following:

> [0009] Thus, according to the invention, there is provided a system and method for managing a data packet queue corresponding to a resource of a network device, the method comprising the steps of:
>
> [0010] maintaining a token count for a predefined flow of data packets;
>
> [0011] controlling transmission of packets in said flow into the queue in dependence on the token count;
>
> [0012] decrementing the token count when packets in the flow are transmitted into the queue;
>
> [0013] incrementing the token count at a token increment rate;
>
> [0014] monitoring a bandwidth indicator indicative of bandwidth availability in the network resource; and
>
> [0015] varying the token increment rate in dependence on the bandwidth indicator such that the increment rate is increased when available bandwidth is indicated and decreased when no available bandwidth is indicated.
>
> [0016] Thus, in accordance with a first embodiment of the present invention, there is provided a token-based active queue management scheme in which the token increment rate is not constant, as in prior systems, but is varied in dependence on bandwidth feedback provided by way of the bandwidth indicator. The token increment rate is increased or decreased according to whether available bandwidth is indicated or not. This bandwidth-dependent variation of the increment rate provides a particularly simple yet effective bandwidth feedback mechanism, ensuring the system is responsive to congestion status while significantly simplifying implementation as compared with prior systems. The use of a token-based scheme has the effect of smoothing bandwith availability information. Therefore bandwidth-dependent decisions using instantaneous bandwidth availability knowledge need not be made on a per-packet basis, allowing simplification of the processing required for individual packets. Moreover, varying the increment rate in dependence on bandwidth availability allows the operation of systems embodying the invention to be more reliably predictable, facilitating the selection of correct parameter settings for efficient network operation. Overall, therefore, embodiments of the invention provide active queue management schemes which significantly alleviate problems of prior systems as discussed above.

As can be seen, Jeffries's token-based active queue management system is about dynamically adapting a token rate to control the traffic flow into a queue. In contrast, the claimed method is about dynamically adapting a data unit drop/mark threshold to queue data units of a flow into a queue buffer. Meyer's does not cure the aforementioned defects of Jeffries. Meyer's relates to a method of controlling the flow of an amount of data from a sending peer to a receiving peer. In particular, Meyer discloses the following:

> A method of controlling the flow of an amount of data from a sending peer to a receiving peer of a predetermined communication protocol is described. The method comprises dividing the amount of data into a plurality of data segments, where the data segments are ordered in a sequence. The segments are sent to the receiving peer in the order of said sequence. The receiving peer acknowledges the correct receipt of a data segment and identifies the last correctly received data segment of the sequence that was received in the proper order of the sequence. The sending peer is arranged such that if it receives a threshold number of duplicate acknowledgements, it performs a retransmission. The threshold number that trigger a retransmission is an adaptive parameter and may assume values larger than three.

In general, Meyer deals with the behavior of an end-to-end transmission protocol (TCP) and does mention a "threshold number adaptation procedure" but this a procedure for determining at which point in time (threshold) a TCP sender should retransmit a data segment. Thus, Meyer's procedure is completely different than the claimed automatic threshold adaptation procedure which relates to determining at what point in time (threshold) a congestion notification procedure should drop or mark a data unit. Applicant submits that the reason for this particular difference is because the claimed method relates to "queue management" whereas Meyer does not relate to "queue management" nor does Meyer even mention the term "queue". In view of at least the foregoing, Applicant submits that the amended independent claim 33 and the corresponding dependent claims 34-52 are patentable over Jeffries, Meyers or any combination thereof.

Referring now to amended independent claim 53, Applicant respectfully submits that this claim is patentable in view of Jeffries, Meyers or any combination thereof. The

independent claim 53 recites the same or similar distinguishing limitations that have been discussed above with respect to independent claim 33. As such, the aforementioned remarks regarding the patentability of independent claim 33 apply as well to independent claim 53. Accordingly, Applicant respectfully requests the allowance of amended independent claim 53 and the corresponding dependent claims 54-64.

CONCLUSION

In view of the foregoing remarks, Applicant believes all of the claims currently pending in the application to be in a condition for allowance. Therefore, Applicant respectfully requests that the Examiner withdraw all objections and rejections and issue a Notice of Allowance for pending claims 33-64.

The Commissioner is hereby authorized to charge any fees for this paper and the co-filed information disclosure statement to Deposit Account No. 50-1379.

Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

/William J. Tucker, Reg No. 41356/

By William J. Tucker
Registration No. 41,356

Date: September 17, 2009

Ericsson Inc.
6300 Legacy Drive, M/S EVR 1-C-11
Plano, Texas 75024

(972) 583-2608 or (214) 324-7280
william.tucker@ericsson.com